

Statement to the California Commission on the Fair Administration of Justice
Kent Scheidegger
Legal Director, Criminal Justice Legal Foundation
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Over the course of three hearings on the death penalty, the Commission has heard a large amount of testimony from many witnesses attacking the death penalty, leaving a huge amount to refute. By necessity, this statement can only address a fraction of what has been said. By my count, the Commission has heard from 25 witnesses identifiably opposed and only 4 in support. Whatever the reasons for this imbalance, we hope that the commissioners will bear in mind that the picture painted by the testimony as a whole is not a balanced or accurate picture and will view it with the skepticism that is warranted for a one-sided presentation.

Deterrence.

Regrettably, the Commission's list of invited witnesses does not include any experts on the subject of deterrence, even though this issue should be central to any discussion of the scope and enforcement of the death penalty. I do not claim to be an expert. However, I maintain on my organization's web site, and have attached to this statement, a list of the citations and abstracts of all the articles we have found on the subject of death penalty deterrence published in peer-reviewed journals in the last twelve years. Unlike some lists, this list is not filtered by viewpoint. Every article known to our organization which meets the criteria is included.¹

For those who are not experts in a field, publication in a peer-reviewed journal provides a generally accepted, relevant, and neutral criterion for screening out articles that do not meet even a minimal standard of scientific validity. That is not to say that every conclusion in a peer-reviewed article is necessarily valid or that every article not peer-reviewed is junk, but peer-reviewed publication does indicate that the researchers had enough confidence in their work to submit it to the scrutiny of their peers and that it passed that review. Articles that have not been peer-reviewed, in contrast, may be agenda-driven works that do not meet the minimal standards of acceptable work in their respective fields.

In testimony to the U. S. Senate Judiciary Committee on February 1, 2006, Professor Paul Rubin of Emory University summarized the research on deterrence.² That testimony is attached

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1. The list is one of the most frequently accessed pages on our web site. It includes an invitation to advise us of any paper meeting the criteria that we have overlooked. To date, no one has brought to our attention any peer-reviewed article not already on the list.
 2. Rubin, Testimony Before the Subcommittee on the Constitution, Civil Rights, and Property Rights of the Committee on the Judiciary, United States Senate, An Examination of the Death Penalty in the United States, 109th Cong., 2d Sess., February 1, 2006, S. Hrg. 109-540, http://judiciary.senate.gov/testimony.cfm?id=1745&wit_id=4991 (copy attached).

to this statement. Strikingly, of the twelve papers published in peer-reviewed journals, *all twelve* find a deterrent effect. Such a convergence of results by different scholars using different methods all coming to the same basic conclusion is remarkable, to put it mildly.

Naturally, this research on such a controversial subject has not gone unchallenged. The critique most often cited by opponents of the death penalty is the 2005 article by Donohue and Wolfers.³ Several points are worth noting about this article. First, the authors chose to bypass the peer-review process and publish their critique in a law review. However prestigious the Stanford Law Review may be for articles about law, its student editors have no credentials or expertise for judging the methodological validity of an empirical study in social science. As a corollary to the Harry Truman principle, if you see someone avoiding the kitchen, there is a good chance he can't take the heat.

Several of the authors criticized by Donohue and Wolfers have written replies that are presently in the prepublication "working paper" stage. In these papers, the authors review and refute the criticisms and show that their original results are valid.⁴

In society, unlike physics, it is not possible to do completely controlled experiments that precisely isolate the variable of interest. Therefore, conclusive proof may not be possible. However, looking at the literature as a whole, the strong preponderance of evidence is that capital punishment does have a deterrent effect and it does save innocent lives where it is actually enforced. Two years ago, Professor Rubin testified, "The literature is easy to summarize: almost all modern studies and all the refereed studies find a significant deterrent effect of capital punishment."⁵ The evidence for deterrence has only gotten stronger since then.

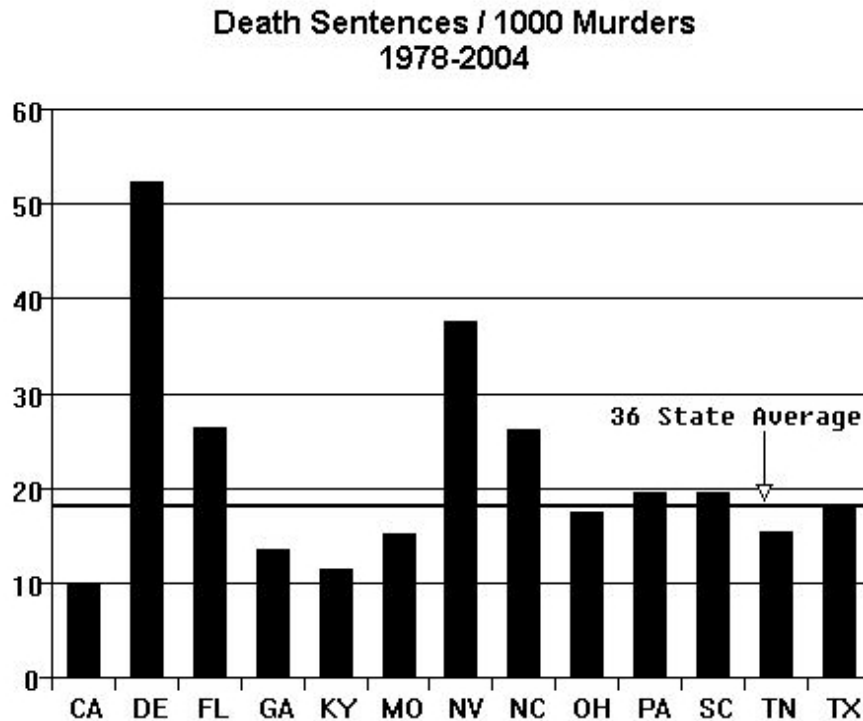
Given the current state of the evidence, the Commission should approach its task with the understanding that it is much more likely than not that (1) the failure to enforce California's death penalty has already killed thousands of innocent people through lost deterrence, and (2) continued failure to enforce it or drastic narrowing of it would kill thousands more.

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3. Donohue & Wolfers, Uses and Abuses of Empirical Evidence in the Death Penalty Debate, 58 Stan. L. Rev. 791 (2005).
 4. Zimmerman, Statistical Variability and the Deterrent Effect of the Death Penalty (2008); Mocan & Gittings, The Impact of Incentives on Human Behavior: Can We Make it Disappear? The Case of the Death Penalty (2006), National Bureau of Economic Research Working Paper 12631; Dezhbakhsh & Rubin, From the 'Econometrics of Capital Punishment' To the 'Capital Punishment' of Econometrics: On the Use and Abuse of Sensitivity Analysis, <http://ssrn.com/abstract=1018533>.
 5. Rubin Testimony, *supra* note 2, part V.

Breadth of California's Death Penalty.

The Commission has heard testimony about the breadth of California's death penalty law, particularly the number of special circumstances that qualify a person for the death penalty. First of all, the number of special circumstances is irrelevant. Some rarely occur.⁶ Six of them are essentially one circumstance, murder of government officials or employees for performing their duty.⁷ Similarly, felony murder is one circumstance, not a separate circumstance for each felony enumerated in the statute, as some witnesses have counted them. A felony murder circumstance that included all felonies would be "fewer" circumstances by such reckoning, even though the resulting law would be much broader.

More importantly though, however broad California's law may be in theory, it is a narrow in practice. For the period from 1978 to 2004, the states that had the death penalty throughout this period imposed an average of 18 death sentences per thousand murders.⁸



6. See, e.g., Penal Code § 190.2, subd. (a)(20) (murder of a juror).

7. Penal Code § 190.2, subd. (a), paragraphs (7)-(9), (11)-(13).

8. National Archive of Criminal Justice Data, <http://www.icpsr.umich.edu/NACJD/das.html>, online analysis of data set 4430, Capital Punishment in the United States, 1973-2004 (query run Feb. 11, 2008).

California's rate is 10 per thousand, a little more than half the average. A change to our death penalty law for the purpose of reducing a rate which is already low is not in order.

At the second hearing, Greg Fisher from the Los Angeles Public Defender Office made a good case, in my view, for narrowing the death penalty law to exclude from eligibility those cases that are rarely or never prosecuted as capital under existing law so that everyone involved knows from the start that the case is not capital. We would be willing to consider such a proposal if the criteria can be written in such clear and objective terms as to be bulletproof from constitutional attack. We know from experience that every change in capital punishment law will be the launching pad for a new round of attacks,⁹ and any proposal will have to be very carefully thought out so that all such challenges can be immediately dismissed and no additional delay will be caused.

The Commission's focus question 4A, slightly rephrased, is "should we import into California the triggerman rule that exempted John Allen Muhammad, the D.C. Beltway sniper,¹⁰ from the death penalty in the state of Maryland." Of course not. Why bring here a rule that caused such a patent miscarriage of justice in another state? Is a person who uses someone else to be his triggerman less culpable for his crime than if he pulled the trigger himself? Of course not. He is more culpable. The minor accomplice swept up in the felony murder rule is already excluded by the rule of *Enmund v. Florida*¹¹ and the California statute implementing that rule.¹² Beyond that, the mitigating *or aggravating* effect of non-triggerman status can and should be considered case-by-case, as it is under present law.

Delay.

In evaluating the delays in California's death penalty review process, I think it is useful to take a look at what happens in other jurisdictions. There is nothing in California's death penalty statute that makes our cases more difficult or more complex than other jurisdictions. Most of the issues arise from United States Supreme Court case law, which is the same in the whole country.

9. For example, Georgia enacted a much-heralded, first-in-the-nation statute exempting the mentally retarded from the death penalty. See *Atkins v. Virginia*, 536 U.S. 304, 313-314 (2002). But no good deed goes unpunished. In time that statute was attacked as supposedly unconstitutional. See *Ferrell v. Head*, 398 F. Supp. 2d 1273, 1295 (ND Ga. 2005).

10. See *Muhammad v. State*, 177 Md. App. 188, 934 A. 2d 1059 (Md. Spec. App. 2007). Despite the fact that capital punishment was not available, the opinion runs 139 pages in the official reports, illustrating that the major murder cases that should be capital remain complex and costly even when the state's law does not allow that punishment.

11. 456 U. S. 782 (1982).

12. Penal Code § 190.2, subs. (c) & (d).

At the first hearing, the Commission heard from Justice Gerald Kogan from Florida, and even though he is someone very much on the other side of the aisle, he did have a couple of points that I think are worth reiterating here. On the subject of how long it should take to prepare a 400-page opening brief in a capital case his response was something along the lines of “You’ve got to be kidding. Why would anybody write a 400-page brief, and why would any court allow it?” His position was that briefs of that length are not more persuasive and are not better advocacy than briefs of 100 pages. This is in accordance with the U. S. Supreme Court’s decision in the case of *Jones v. Barnes*,¹³ where the court held that raising every colorable issue is not only not required, it is not desirable. “Experienced advocates since time beyond memory have emphasized the importance of winnowing out weaker arguments on appeal and focusing on one central issue if possible, or at most on a few key issues.”¹⁴ The high court went on to say, “A brief that raises every colorable issue runs the risk of burying good arguments . . . in a verbal mound made up of strong and weak contentions.” In this respect, death is *not* different. While limiting the brief to one or two issues may not be in order, effective advocacy does not require writing a phonebook-sized brief, and the people of California should neither pay for such a brief nor tolerate the delay that comes with writing it.

A second point Justice Kogan made is that, in a state Supreme Court with responsibilities similar to ours and with a number of capital cases similar to ours,¹⁵ getting the direct appeal cases briefed and decided in a reasonable time was not a serious problem. The big delay in Florida came at a later stage, involving an execution-setting procedure very different from ours. If Florida can get the direct appeal briefed and decided in a reasonable time, I do not see any reason why California cannot.

Also worth considering is the experience of the federal courts. The defense side loves to tell us that the federal courts are so much better than the California courts, so let us see what they do with their capital cases. At the first session, the Commission also heard from Judge Arthur Alarcon of the Ninth Circuit who has compiled a very useful database of capital case processing. For the federal completed cases in his database, the median brief was about 100 pages long and was filed less than a year from the date of notice of appeal. The longest any case took to brief was a year and a half from notice of appeal. Federal capital sentencing law is no less complicated than California’s, and it is arguably more so, yet appellate counsel in the federal courts were able to get these cases briefed in far less time than it typically takes in California. Again, if counsel can do it in federal courts, I see no reason why they cannot in California.

With regard to collateral review, I was very pleased to hear several people on the defense side at the second session endorse the idea that collateral proceedings should begin promptly and that the trial court is the place to do them. Collateral review is all about claims based on facts

13. 463 U. S. 745 (1983).

14. *Id.*, at 751-752.

15. From 1978 to 2004, Florida had 828 death sentences, and California had 781. See *supra* note 8.

outside the record. The trial court is the place to determine facts, and the sooner after the fact the better. Several times I have proposed such a reform to the Legislature, and each time the proposal has been summarily killed. All but two of the other states handle their collateral review in this manner, and there is no good reason for us not to.

Costs.

With regard to costs, much of what I said about delay also applies to costs, and much of what I'm going to say about cost also applies to delay. At the second session, the Commission heard Susan Everingham from RAND Corporation say that the cost questions are complex and require further study. That is true, and it may be that all this commission can say about cost is to make recommendations for further study.

As we talk about the costs of capital cases and as further research is done on the cost of capital cases, it is important to distinguish what costs are inherent in complex homicide cases, what costs are necessarily inherent in capital punishment, what costs can be reduced or eliminated within the current legal framework, and what costs are caused by rules of law that might be changed if those with the authority to change them were aware of how much they cost. Research on costs should therefore not accept the current legal framework as a given but instead look critically at the costs caused by that framework.

First on the list of unnecessary costs is the so-called "exhaustion petition." The Commission has been told that when a capital case reaches federal court after a state direct appeal and state habeas, federal law requires the case to return to state court again to exhaust any additional claims that counsel wishes to raise. That is only half the truth. Federal law requires that exhaustion only if state law permits a successive petition. In habeas parlance, if the claim is defaulted under state law, then the exhaustion requirement is satisfied.¹⁶

I have not found a single successive petition in a capital case granted by a California state court in the modern era, but I will hedge and say such petitions are rarely or never granted. So why allow them? Most states and the federal government have much stricter successive petition rules than California has.¹⁷ If successive petitions are simply not allowed, no exhaustion petition is required. Federal habeas counsel then proceeds to make his case in the federal court as to whether the claim qualifies for consideration under the "cause and prejudice" or actual innocence exceptions.¹⁸

A small but possibly significant unnecessary cost is appeals that are nominally on behalf of people who don't want to appeal. A mentally competent defendant who wants to dismiss his appeal should be allowed to do so in a capital case the same as any other case. At present,

16. See, e.g., *Coleman v. Thompson*, 501 U. S. 722, 732 (1991).

17. See, e.g., 28 U. S. C. § 2255 (h) (renumbered by Pub. L. 110-177, § 511).

18. See *Coleman*, 501 U. S., at 750.

voluntary dismissal is not allowed on direct appeal due to a dubious interpretation of the appeal statute.¹⁹ Further, if a defendant wants his lawyer to challenge only the guilt and not the penalty, the lawyer should be ethically required to accept the client's direction on the goals of representation, as in any other case.²⁰

We need to distinguish the cost of the guilt determination from the cost of the penalty determination. As to guilt, whatever we need to spend to make sure we have the actual perpetrator if the penalty is death, there is no moral justification for spending a penny less if the penalty is life without parole. Although a life without parole prisoner may have longer time to prove actual innocence, the reality is that he will rarely have the resources to do so. Any claim that we can save money on the *guilt* phase by imposing a sentence of life without parole instead of death is essentially a claim that we can save money by sending innocent people to prison for life.

As to costs related to the penalty determination, the testimony we heard from defense counsel at the second hearing indicated that compliance with the Supreme Court's mandate in the *Lockett v. Ohio*²¹ line of cases is a predominant source of the extra expense. That line of cases holds that a state cannot base its penalty determination on the facts of the crime and the defendant's criminal record or lack of one, but must instead conduct an exhaustive psychosocial examination of the defendant's entire life. That rule causes large additional expense in preparation for trial, conducting the trial, and in review of the trial, especially the inevitable claim that counsel was ineffective in presenting this evidence. Habeas counsel, we are now told, is required to do another scorched-earth investigation.

The *Lockett* case was wrongly decided as an original matter, as explained by Justice White in his separate opinion. Several of the current justices have written opinions questioning the entire line or its more expansive interpretations.²² The case hangs on primarily by virtue of the doctrine of precedent. The huge cost associated with this rule is a powerful reason to overrule it, and any future research commissioned on the subject of cost should separately quantify the cost of *Lockett* compliance in order to inform the Supreme Court's decision on whether to keep that rule.

19. *People v. Stanworth*, 71 Cal. 2d 820, 833 (1969); Penal Code § 1239(b).

20. See ABA Model Rules of Professional Conduct, rule 1.2(a) (“...a lawyer shall abide by a client's decisions concerning the objectives of representation...”). There is no California rule on point.

21. 438 U. S. 586 (1978) (plurality opinion).

22. See *Walton v. Arizona*, 497 U. S. 639, 672-673 (1990) (Scalia, J., dissenting); *Graham v. Collins*, 506 U. S. 461, 478 (1993) (Thomas, J., concurring); *Johnson v. Texas*, 509 U. S. 350, 366 (1993) (opinion by Kennedy, J.).

The cost of incarceration on death row has been raised as a prominent cost of the death penalty. We need to divide that into necessary and unnecessary costs. If the entire review process were completed in about five years, the cost of incarceration on death row would drop dramatically. That is possible and has been done in Virginia.²³ The cost of incarceration would then be far less than the cost of life without parole, particularly when the costs of medical care for elderly prisoners are factored in, as they should be.²⁴ Review in that time frame is achievable if direct review is completed as quickly as in the federal courts, if collateral proceedings are commenced in the trial court promptly after sentence so that the direct and collateral state processes conclude roughly concurrently, and if the federal courts comply with Chapter 154 of Title 28 of the United States Code.

In contrast to RAND Corporation's careful, qualified statement about what needs to be done for a valid study, the ACLU has provided the Commission with a counterexemplar of how *not* to do a study.²⁵ The ACLU released the study on the day of the Commission's last hearing so that no live witnesses could provide the Commission with a critical analysis. After having a chance to review the report, the reason for this timing becomes clear.

On pages 6 and 21-25, the ACLU recites how much the Scott Peterson case cost in police and prosecution staff time. Certainly that case was expensive, but how much of the expense is attributable to the fact that the prosecution sought the death penalty, and how much would have been incurred even if California had no death penalty? The report makes no serious attempt to grapple with this question. Not a single one of the expenses described on these pages is clearly for penalty rather than guilt. As everyone knows from the extensive media coverage of that case, it was a murder mystery where identity of the perpetrator was the primary issue. Identity must be resolved exactly the same whether the sentence is death or life without parole. It is unlikely that much of the prosecution expense in the Peterson case was for the penalty phase, given that the compelling case in aggravation was apparent from the crime itself: killing a young woman in the late stage of pregnancy and her nearly full-term child.

23. Database provided by the Virginia Attorney General. The median time from crime to execution for 89 cases executed between 1982 and 2006 was 69 months. The time from sentence to execution is not in the data, but it would obviously be shorter.

24. Incarceration costs drop to zero if the sentence is affirmed and executed. It would be in most cases, given the high rate of affirmance in California, if the federal courts obeyed the mandate of Congress to grant federal habeas relief only in the rare cases where the state court decision is unreasonable. See 28 U. S. C. § 2254(d). Regrettably, violations of this law have been common. See, e.g., *Woodford v. Visciotti*, 537 U. S. 19, 26-27 (2002) (unanimous, summary reversal on Ninth Circuit for granting habeas relief based on disagreement with California Supreme Court rather than giving the deference required by law). More recently, there has been an encouraging trend for the Ninth Circuit to go en banc and correct rogue panel decisions. See, e.g., *Plumlee v. Mastro*, 512 F. 3d 1204 (CA9 2008).

25. American Civil Liberties Union of Northern California, *The Hidden Death Tax: The Secret Costs of Seeking Execution in California* (2008).

An even more stark example of how this study's figures are beside the point can be found on page 8. There the ACLU posits *as a cost of the death penalty* that, "DNA evidence that may exonerate the defendant must be analyzed by skilled forensic scientists." That would be a cost of the death penalty only if potentially exonerating DNA evidence did *not* have to be analyzed in life imprisonment cases. Surely no one would seriously advance that proposition.

The ACLU's method of determining costs was challenged at the Commission's hearing, and I will not add to that discussion here. The district attorney members of the Commission are better qualified to address this aspect of the study. But even if the cost figures were correct, comparing the cost of death penalty cases with the cost of noncapital cases and assuming that the death penalty is the reason for the difference violates the most elementary principle of social science research. Two groups cannot be compared for their difference in one variable unless some steps are taken to ensure that the groups are alike in all other respects. Here the exact opposite is true. The death penalty group is intentionally selected by the prosecutors to be the worst of the homicide cases. The fact that this group of cases cost more than the group deemed less serious tells us nothing without controlling for the inherent difference in the groups, and the ACLU study has no controls.

The ACLU study also makes no attempt to separate necessary from unnecessary costs of the death penalty. One page 1, the study says, "The largest single expense is the extra cost of simply housing people on death row, \$90,000 per inmate more than housing in the general prison population." If that cost is incurred for 20 years of review and only 5 are necessary, then \$1,350,000 of the cost is unnecessary and could be eliminated by reform of the review process.

For all these reasons, the ACLU study is so deeply flawed as to be entitled to no weight in the Commission's deliberations.

In summary, CJLF recommends that the Commission's recommendation on cost be simply that more study is needed. Any study should separately break out (1) costs of presently capital cases that would be incurred anyway if the same cases were not capital; (2) costs that could be avoided within the current legal framework; (3) costs that could be avoided with changes in the legal framework, especially the rule of *Lockett v. Ohio*; and (4) costs specifically for the death penalty that cannot be so avoided. Only the fourth category constitutes inherent costs of the death penalty.

Bias.

The issue of racial bias is one that has been extensively studied. The most important finding that we see in state after state, including studies sponsored by the defense side or done by defense-oriented researchers, is an absence of any discernible bias on the race of the perpetrator. This is the kind of bias that is of greatest concern because it is the only kind that indicates anyone is on death row because of his race. Absence of such an effect is a great accomplishment and one that should be celebrated. Yet when studies are announced, that finding is typically buried in the fine print.

The issue of so-called geographic disparity has already been addressed by the district attorneys with regard to the charging practices. This variation from county to county is local democracy working as designed. I would also add that variations in the jury sentences from county to county is the tradition of jury of the vicinage working as designed. So in answer to focus question nine, no, it is not a problem.

We need to be aware of variation by county, however, because if we fail to control for it in studies of race and sentencing, it produces a false indication of so-called “race of the victim bias” where there actually is none. We saw this in the University of Maryland study. If you skip past the press release and go to the data, as I did in the article attached to this statement, you find that what appears to be a racial difference in statewide data disappears into the statistical grass when controlled for the jurisdiction of the offense. What happens in Maryland is that in the two counties with the highest black population, which is where most of the black-victim cases are, the death penalty is imposed less often even when you control for case characteristics, to the extent that a study can control for them.

Is this an indication of racism? No, it is exactly the opposite. This is the residents of those counties, many of whom are African-American, exercising control over the administration of criminal justice in their locality at the ballot box and in the jury box. Wasn't that exactly the point of the civil rights movement in enfranchising black voters and striking down discrimination in jury selection? Polls consistently show that support for capital punishment is lower in the black community than in any other segment of the population polled. Why should anyone be surprised that areas with a high black population elect prosecutors who seek the death penalty less often and form juries that impose the death penalty less often? I would be very surprised if they did not.

Research we have to date does not prove or even raise a reasonable suspicion that race is a significant factor in either the charging decision or the sentencing decision in California capital cases. Further research can be done, but if any research is commissioned by the government, we should be very careful that the results will be properly analyzed and not distorted to serve a predetermined agenda.

Proportionality Review.

Proportionality review is a solution in search of a problem. The last thing California needs is yet another layer of review in a system that already has too many layers, takes too long, and costs too much. A proposal to add such a layer on an issue having nothing to do with actual guilt and without any showing that any injustices are in need of correction on this score should be summarily rejected.

Executive Clemency.

The Commission heard testimony at its last hearing to the effect that executive clemency is insufficiently used in California. Whatever the situation may be in noncapital cases, this has not been a problem in capital cases. No clemency has been granted in any of the capital cases

where judicial review has been completed for the simple, obvious reason that there are very few such cases and none was an appropriate case for clemency.

There are, in general, two reasons to grant clemency in a capital case. The first, and most compelling, is when a genuine question remains at the end regarding the defendant's identity as the perpetrator. None of the murderers executed in California in the modern era has had such a genuine question. In the case of Thomas Thompson, for example, the inmate presented a claim of innocence or at least ineligibility for the death penalty. The governor thoroughly reviewed that claim before concluding that "his claims of innocence are built on sand" and "he has not remotely approached making [a] showing" that a mistake had been made.²⁶

The second reason to grant clemency is that the case is an obviously mitigated case of homicide, and some highly unusual lapses of discretion by the prosecutor, the jury, and the judge have coincided to produce a death sentence in a case where it is clearly unwarranted. Such cases are rare to nonexistent. I have worked in this field over 20 years now and worked on scores of capital cases. There has not been a single one where the jury chose the death penalty but that penalty was unwarranted on the facts of the case. None of the California capital cases considered for clemency in the modern era has come close. Even so, the possibility does exist, and executive clemency is the safety net if it does happen.

I do suggest one procedural enhancement to the system. Neither the governor's office nor the parole board is the best place to resolve factual questions regarding actual guilt, although they have done so when necessary. The governor or the board should be authorized to appoint, when they deem it appropriate, a hearing officer with subpoena power and the authority to order forensic tests. This officer should hear disputed facts regarding guilt or innocence and report back to the governor and board regarding the degree of confidence with which we can say the defendant is an actual perpetrator of the murder. The action on that information would remain up to the governor, in accordance with the discretionary nature of clemency.

This investigation should be done concurrently with the reviews that follow the Ninth Circuit panel decision so that no additional delay is created. That is, it would be concurrent with the Ninth Circuit's consideration of whether to take the case en banc and the Supreme Court's consideration of whether to grant a writ of certiorari. The report would, in almost all cases, expose the "built on sand" claims of innocence for what they are. In the few (if any) cases where actual doubt exists, the report would give the governor a basis acceptable to the public for a grant of clemency.

26. See *Calderon v. Thompson*, 523 U. S. 538, 547 (1998). The text of Governor Wilson's statement is attached to CJLF's amicus brief in that case.

Conclusion.

The unfairness in California's death penalty today lies in the fact that execution of the judgment is too uncertain and takes too long. One need only read the facts of the capital cases to see that the penalties are well deserved in the cases where they are imposed. Recommendations to make the death penalty more fair in California should therefore be centered on reducing the delay in executing the sentences. Five years from sentence to execution is sufficient for review if everyone involved gives the cases the priority they deserve. That period should be set as a goal, and reforms and further study should be directed toward reaching it.

ARTICLES ON DEATH PENALTY DETERRENCE

• PUBLISHED RESEARCH

Charles N. W. Keckler

Life v. Death: Who Should Capital Punishment Marginally Deter?

Journal of Law, Economics and Policy, vol. 2, no. 1, pp. 101-161 (2006)

Abstract: Econometric measures of the effect of capital punishment have increasingly provided evidence that it deters homicides. However, most researchers on both sides of the death penalty debate continue to rely on rather simple assumptions about criminal behavior. I attempt to provide a more nuanced and predictive rational choice model of the incentives and disincentives to kill, with the aim of assessing to what extent the statistical findings of deterrence are in line with theoretical expectations. In particular, I examine whether it is plausible to suppose there is a marginal increase in deterrence created by increasing the penalty from life imprisonment without parole to capital punishment. The marginal deterrence effect is shown to be a direct negative function of prison conditions as they are anticipated by the potential offender – the more tolerable someone perceives imprisonment to be, the less deterrent effect prison will have, and the greater the amount of marginal deterrence the threat of capital punishment will add. I then examine the empirical basis for believing there to be a subset of killers who are relatively unafraid of the prison environment, and who therefore may be deterred effectively only by the death penalty. Criminals, empirically, appear to fear a capital sentence, and are willing to sacrifice important procedural rights during plea bargaining to avoid this risk. This has the additional effect of increasing the mean expected term of years attached to a murder conviction, and may generate a secondary deterrent effect of capital punishment. At least for some offenders, the death penalty should induce greater caution in their use of lethal violence, and the deterrent effect seen statistically is possibly derived from the change in the behavior of these individuals. This identification of a particular group on whom the death penalty has the greatest marginal effect naturally suggests reforms in sentencing (and plea bargaining) which focus expensive capital prosecutions on those most insensitive to alternative criminal sanctions.

Paul R. Zimmerman

Estimates of the Deterrent Effect of Alternative Execution Methods in the United States: 1978-2000

American Journal of Economics and Sociology, vol. 65, no. 4, p. 909 (Oct. 2006)

Abstract: Several recent econometric studies suggest that states' application of capital punishment deters the rate of murder [Brumm and Cloninger (1996), Cloninger and Marchesini (2001), Mocan and Gittings (2001), and Zimmerman (2002)]. Since the U.S. Supreme Court's moratorium on state executions was lifted in 1976, states with death penalty laws have executed individuals using one or more of five different methods of execution (electrocution, lethal injection, gas chamber asphyxiation, hanging, and/or firing squad). The perceived "brutality" of certain execution methods (such as electrocution and gas chamber asphyxiation) has also recently lead to lethal injection being imposed as the sole method of execution in several death penalty states.

Using a panel of state-level data over the years 1978-2000, this paper examines whether the method by which death penalty states conduct their executions affects the per-capita incidence of murder in a differential manner. Several measures of the subjective probability of being executed are developed taking into account the timing of individual executions as in Mocan and

Gittings (2001). The empirical estimates suggest that the deterrent effect of capital punishment is driven primarily by executions conducted by electrocution. None of the other four methods of execution are found to have a statistically significant impact on the per-capita incidence of murder. These results are robust with respect to the manner in which the subjective probabilities of being executed are defined, whether or not a state has a death penalty law on the books, the removal of state and year fixed effects, controls for state-specific time trends, simultaneous control of all execution methods, and controls for other forms of public deterrence. In addition, it is shown that the negative and statistically significant impact of electrocutions is not driven by the occurrence of a “botched” electrocution execution during the relevant time period.

Paresh Narayan & Russell Smyth

Dead Man Walking: An Empirical Reassessment of the Deterrent Effect of Capital Punishment Using the Bounds Testing Approach to Cointegration

Applied Economics, vol. 38, no. 17, pp. 1975-1989 (Sept. 20, 2006)

Abstract: This paper empirically estimates a murder supply equation for the United States from 1965 to 2001 within a cointegration and error correction framework. Our findings suggest that any support for the deterrence hypothesis is sensitive to the inclusion of variables for the effect of guns and other crimes. In the long-run we find that real income and the conditional probability of receiving the death sentence are the main factors explaining variations in the homicide rate. In the short run the aggravated assault rate and robbery rate are the most important determinants of the homicide rate.

Hashem Dezhbakhsh & Joanna M. Shepherd

The Deterrent Effect of Capital Punishment: Evidence from a “Judicial Experiment”

Economic Enquiry, vol. 44, no. 3, pp. 512-535 (July 2006)

Abstract: We use panel data for 50 states during the 1960–2000 period to examine the deterrent effect of capital punishment, using the moratorium as a “judicial experiment.” We compare murder rates immediately before and after changes in states’ death penalty laws, drawing on cross-state variations in the timing and duration of the moratorium. The regression analysis supplementing the before-and-after comparisons disentangles the effect of lifting the moratorium on murder from the effect of actual executions on murder. Results suggest that capital punishment has a deterrent effect, and that executions have a distinct effect which compounds the deterrent effect of merely (re)instating the death penalty. The finding is robust across 96 regression models.

Richard Berk

New Claims about Execution and General Deterrence: Deja Vu All over Again?

Journal of Empirical Legal Studies, vol. 2, issue 2, pp. 303-330 (July 2005)

Abstract: A number of papers have recently appeared claiming to show that in the United States executions deter serious crime. There are many statistical problems with the data analyses reported. This article addresses the problem of “influence,” which occurs when a very small and atypical fraction of the data dominate the statistical results. The number of executions by state and year is the key explanatory variable, and most states in most years execute no one. A very few states in particular years execute more than five individuals. Such values represent about 1 percent of the available observations. Reanalyses of the existing data are presented showing that claims of deterrence are a statistical artifact of this anomalous 1 percent.

Dale O. Cloninger & Roberto Marchesini

Execution Moratoriums, Commutations and Deterrence: the case of Illinois

Applied Economics, vol. 38, no. 9, pp. 967-973 (May 20, 2006)

Abstract: In an earlier work the impact of an execution moratorium in Texas on the monthly returns (first differences) of homicides was investigated. That moratorium was judicially imposed pending the appeal of a death sentence that could have had widespread consequences. A similar methodology is applied to the state of Illinois. In January 2000, the Governor of Illinois declared a moratorium on executions pending a review of the judicial process that condemned certain murderers to the death penalty. In January 2003 just prior to leaving office, the Governor commuted the death sentences of all of those who then occupied death row. It is found that these actions are coincident with the increased risk of homicide incurred by the residents of Illinois over the 48 month post-event period for which data were available. The increased risk produced an estimated 150 additional homicides during the post-event period.

Robert Weisberg

The Death Penalty Meets Social Science: Deterrence and Jury Behavior Under New Scrutiny

Annual Review of Law and Social Science, vol. 1, pp. 151-170 (December 2005)

Abstract: Social science has long played a role in examining the efficacy and fairness of the death penalty. Empirical studies of the deterrent effect of capital punishment were cited by the Supreme Court in its landmark cases in the 1970s; most notable was the 1975 Isaac Ehrlich study, which used multivariate regression analysis and purported to show a significant marginal deterrent effect over life imprisonment, but which was soon roundly criticized for methodological flaws. Decades later, new econometric studies have emerged, using panel data techniques, that report striking findings of marginal deterrence, even up to 18 lives saved per execution. Yet the cycle of debate continues, as these new studies face criticism for omitting key potential variables and for the potential distorting effect of one anomalously high-executing state (Texas). Meanwhile, other empiricists, relying mainly on survey questionnaires, have taken a fresh look at the human dynamics of death penalty trials, especially the attitudes and personal background factors that influence capital jurors.

Joanna M. Shepherd, Clemson University

Murders of Passion, Execution Delays, and the Deterrence of Capital Punishment

Journal of Legal Studies, vol. 33, no. 2, pp. 283-322 (June 2004)

Abstract: I examine two important questions in the capital punishment literature: what kinds of murders are deterred and what effect the length of the death-row wait has on deterrence? To answer these questions, I analyze data unused in the capital punishment literature: monthly murder and execution data. Monthly data measure deterrence better than the annual data used in earlier capital punishment papers for two reasons: it is impossible to see monthly murder fluctuations in annual data and only monthly data allow a model in which criminals update their perceived execution risk frequently. Results from least squares and negative binomial estimations indicate that capital punishment does deter: each execution results in, on average, three fewer murders. In addition, capital punishment deters murders previously believed to be undeterrable: crimes of passion and murders by intimates. Moreover, murders of both black and white victims decrease after executions. This suggests that, even if the application of capital punishment is racist, the benefits of capital punishment are not. However, longer waits on death row before execution lessen the deterrence. Specifically, one less murder is committed for every 2.75-years reduction in death row waits. Thus, recent legislation to shorten the wait on death row should strengthen capital punishment's deterrent effect.

Paul R. Zimmerman

State Executions, Deterrence and the Incidence of Murder

Journal of Applied Economics, vol. 7, no. 1, pp. 163-193 (May 2004)

Abstract: This study employs a panel of U.S. state-level data over the years 1978-1997 to estimate the deterrent effect of capital punishment. Particular attention is paid to problems of endogeneity bias arising from the non-random assignment of death penalty laws across states and a simultaneous relationship between murders and the deterrence probabilities. The primary innovation of the analysis lies in the estimation of a simultaneous equations system whose identification is based upon the employment of instrumental variables motivated by the theory of public choice. The estimation results suggest that structural estimates of the deterrent effect of capital punishment are likely to be downward biased due to the influence of simultaneity. Correcting for simultaneity, the estimates imply that a state execution deters approximately fourteen murders per year on average. Finally, the results also suggest that the announcement effect of capital punishment, as opposed to the existence of a death penalty provision, is the mechanism actually driving the deterrent effect associated with state executions.

Zhiqiang Liu

Capital Punishment and the Deterrence Hypothesis: Some New Insights and Empirical Evidence

Eastern Economic Journal, vol. 30, iss. 2, p. 237 (Spring 2004)

Abstract: Economists have made repeated efforts through both theoretical modeling and empirical testing to understand the deterrent effect of capital punishment. By and large, they have found a negative and statistically significant effect of capital punishment on the act of murder (that is, the death penalty deters murder). Ehrlich [1975] provides the first systematic analysis of the relationship between capital punishment and murder along with the first empirical test of the deterrence hypothesis concerning not only capital punishment but also other deterrent measures. His results suggest that on the average eight murder victims might have been saved as a result of one execution for the sample period 1933-67 in the United States. Although Ehrlich's work was criticized by scholars such as Waldo [1981] and Forst [1983], many subsequent studies, using independent time-series and cross-section data from the United States [Ehrlich, 1977; Layson, 1985; Cloninger, 1992; Ehrlich and Liu, 1999; Dezhbakhsh, et al. 2000], Canada [Layson, 1983] and the UK [Wolpin, 1978], have offered corroborating evidence consistent with the deterrence hypothesis.

H. Naci Mocan & R. Kaj Gittings

Getting Off Death Row: Commuted Sentences and the Deterrent Effect of Capital Punishment

Journal of Law and Economics, vol. 46, no. 2, pp. 453-478 (October 2003)

Abstract: This paper merges a state-level panel data set that includes crime and deterrence measures and state characteristics with information on all death sentences handed out in the United States between 1977 and 1997. Because the exact month and year of each execution and removal from death row can be identified, they are matched with state-level criminal activity in the relevant time frame. Controlling for a variety of state characteristics, the paper investigates the impact of the execution rate, commutation and removal rates, homicide arrest rate, sentencing rate, imprisonment rate, and prison death rate on the rate of homicide. The results show that each additional execution decreases homicides by about five, and each additional commutation increases homicides by the same amount, while an additional removal from death row generates one additional murder. Executions, commutations, and removals have no impact on robberies, burglaries, assaults, or motor-vehicle thefts.

Hashem Dezhbakhsh, Paul H. Rubin, & Joanna M. Shepherd

Department of Economics, Emory University

Does Capital Punishment Have a Deterrent Effect? New Evidence from Postmoratorium Panel Data
American Law & Economics Review, vol. 5, no. 2, pp. 344-376 (Fall 2003)

Abstract: Evidence on the deterrent effect of capital punishment is important for many states that are currently reconsidering their position on the issue. We examine the deterrent hypothesis using county-level, post-moratorium panel data and a system of simultaneous equations. The procedure we employ overcomes common aggregation problems, eliminates the bias arising from unobserved heterogeneity, and provides evidence relevant for current conditions. Our results suggest that capital punishment has a strong deterrent effect; each execution results, on average, in 18 fewer murders—with a margin of error of plus or minus 10. Tests show that results are not driven by tougher sentencing laws, and are also robust to many alternative specifications.

Lawrence Katz, Steven D. Levitt & Ellen Shustorovich

Prison Conditions, Capital Punishment, and Deterrence

American Law and Economics Review, vol. 5, issue 2, pages 318-343 (Fall 2003)

Abstract: Previous research has attempted to identify a deterrent effect of capital punishment. We argue that the quality of life in prison is likely to have a greater impact on criminal behavior than the death penalty. Using state-level panel data covering the period 1950--90, we demonstrate that the death rate among prisoners (the best available proxy for prison conditions) is negatively correlated with crime rates, consistent with deterrence. This finding is shown to be quite robust. In contrast, there is little systematic evidence that the execution rate influences crime rates in this time period.

James A. Yunker, Western Illinois University

A New Statistical Analysis of Capital Punishment Incorporating U.S. Postmoratorium Data

Social Science Quarterly, vol. 82, no. 2, pp. 297-311 (2002)

Objective: This article reports on a basic regression analysis of the deterrence hypothesis incorporating U.S. data that has accumulated since the resumption of capital punishment in 1977. Methods. The cross-sectional approach employs data on state homicide rates and estimated execution rates between 1976 and 1997 across 50 states and the District of Columbia. The time series approach employs annual data on the U.S. national homicide rate and estimated national execution rate between 1930 and 1997. Results. Using state data, statistically weak support is found for the deterrence hypothesis. Using national time series data, considerably stronger statistical support is found for the deterrence hypothesis. It is also shown that the same time series regression using data from 1930 to 1976 does not support the deterrence hypothesis, thus showing the probative value of the more recent data. Conclusions. Statistical data from the postmoratorium period are likely to be useful in evaluating the deterrence hypothesis, and therefore social scientists should be carefully examining this evidence.

Dale O. Cloninger & Roberto Marchesini

University of Houston --Clear Lake

Execution and Deterrence: A Quasicontrolled Group Experiment

Applied Economics, vol. 33, no. 5, pp. 569-576 (2001)

Abstract: Using portfolio analysis in a type of controlled group experiment, this study develops an empirical model of homicide changes in Texas over a period of a "normal" number of

executions. The empirically derived model then estimates the changes in the number of homicides in Texas (1) over a period of near zero executions and; (2) over an immediate subsequent period of double the “normal” number of executions. The actual changes in Texas homicides over the first period is less than estimated by the model and greater (or no different) than estimated by the model in the second period. Because changes in the number of homicides in Texas and throughout the United States were negative over both periods, these empirical results are consistent with the deterrence hypothesis. That is, there were a greater than predicted number of homicides in the first period and fewer than predicted number in the second period.

Jon Sorensen, Robert Wrinkle, Victoria Brewer, & James Marquart
Capital punishment and deterrence: Examining the effect of executions on murder in Texas *Crime and Delinquency*, vol. 45, no.4, pp. 481-493 (Oct. 1999)

Abstract: This study tested the deterrence hypothesis in Texas, the most active execution jurisdiction during the modern era.

Isaac Ehrlich and Zhiqiang Liu
Sensitivity Analysis of the Deterrence Hypothesis: Lets Keep the Econ in Econometrics
Journal of Law and Economics, vol. 42, no. 1, pp. 455-487 (April 1999)

Abstract: Leamer and McManus applied Extreme Bound Analysis (EBA) in an empirical study of the deterrent effects of capital punishment and other penalties. Their analysis has questioned the validity of the deterrence hypothesis. The thrust of our paper is twofold: first, by applying EBA to well-known econometric models of demand, production, and human-capital investment, our analysis exposes and illustrates the inherent flaws of EBA as a method of deriving valid inferences about model specification. Second, since the analysis shows Leamer and McManus’s inferences about deterrence to be based on a flawed methodology, we offer an alternative, theory-based sensitivity analysis of estimated deterrent effects using similar data. Our analysis supports the deterrence hypothesis. More generally, it emphasizes the indispensable role of theory in guiding sensitivity analyses of model specification.

Harold J. Brumm and Dale O. Cloninger
Perceived Risk of Punishment and the Commission of Homicides: A Covariance Structure Analysis
Journal of Economic Behavior and Organization, vol. 31, no. 1, pp. 1-11 (Sept. 1996)

Abstract: If the behavior of potential murderers does in fact respond to the risk of punishment, it is the perceived risk rather than the ex post risk as measured by arrest rates, conviction rates, or execution rates. Previous empirical studies of homicide behavior have, by and large, ignored this distinction. The present paper accommodates this distinction by estimating a covariance structure model in which the perceived risk is treated as an endogenous latent variable, with two measures of sanctions as its indicators. Cross-section data are used for the estimation. One of the principal findings is that the homicide commission rate is significantly and negatively correlated with the perceived risk of punishment, which provides empirical support for the deterrence hypothesis (Ehrlich, 1975). The other principal findings are that the perceived risk of punishment is (a) significantly and negatively correlated with the homicide commission rate, and (b) significantly and positively correlated with police presence. The latter results provide empirical support for the resource saturation hypothesis (Fisher and Nagin, 1978).

Testimony
United States Senate Committee on the Judiciary
An Examination of the Death Penalty in the United States
February 1, 2006

Dr. Paul Rubin
Professor of Economics , Emory University

Statistical Evidence on Capital Punishment and the Deterrence of Homicide

Written Testimony for the Senate Judiciary Committee on the Constitution, Civil Rights, and Property Rights
February 1, 2006

Paul H. Rubin
Samuel Candler Dobbs Professor of Economics and Law
Emory University

I. Introduction and Summary

Recent research on the relationship between capital punishment and homicide has created a consensus among most economists who have studied the issue that capital punishment deters murder. Early studies from the 1970s and 1980s reached conflicting results. However, recent studies have exploited better data and more sophisticated statistical techniques. The modern refereed studies have consistently shown that capital punishment has a strong deterrent effect, with each execution deterring between 3 and 18 murders. This is true even for crimes that might seem not to be deterrable, such as crimes of passion. (There is some evidence from unrefereed studies that have not been scientifically evaluated that is inconsistent with this generally accepted claim.)

I proceed as follows. Part II explains my qualifications. Part III discusses early research on whether capital punishment deters crime. Part IV describes modern studies, and Part V is a brief summary.

II. My Background and Qualifications.

I am the Samuel Candler Dobbs Professor of Economics and Law at Emory University in Atlanta and editor in chief of *Managerial and Decision Economics*. I am a Fellow of the Public Choice Society and former Vice President of the Southern Economics Association, and associated with the Independent Institute, the Progress and Freedom Foundation, and the American Enterprise Institute. I have been Senior Staff Economist at President Reagan's Council of Economic Advisers, Chief Economist at the U.S. Consumer Product Safety Commission, Director of Advertising Economics at the Federal Trade Commission, and vice-president of Glassman-Oliver Economic Consultants, Inc., a litigation consulting firm in Washington. I have taught law and economics at the University of Georgia, City University of New York, VPI, and George Washington University Law School.

I have written or edited seven books, and published over one hundred articles and chapters on economics, law, regulation, and evolution in journals including the American Economic Review, Journal of Political Economy, Quarterly Journal of Economics, Journal of Legal Studies, Journal of Law and Economics, the Yale Journal on Regulation, and Human Nature, and I sometimes contribute to the Wall Street Journal and other leading newspapers. My work has been cited in the professional literature over 1400 times. I have consulted widely on litigation related matters and have been an advisor to the Congressional Budget Office on tort reform. I have addressed numerous business, professional, policy and academic audiences.

I received my B.A. from the University of Cincinnati in 1963 and my Ph.D. from Purdue University in 1970. Much of my research has been on statistical analysis of legal issues, including the economics of crime. I was a co-author of the first published paper examining the deterrent effect of capital punishment using data from the period after the moratorium on executions: Hashem Dezhbakhsh, Paul H. Rubin, and Joanna M. Shepherd, Does Capital Punishment Have a Deterrent Effect? New Evidence from Postmoratorium Panel Data, 5 American Law and Economics Review 344 (2003).

III. Early Literature on Capital Punishment and Deterrence.

The initial participants in the debate over the deterrent effect of capital punishment were psychologists and criminologists. Their research was either theoretical or based on comparisons of crime patterns in states with and without capital punishment. However, because they did not use multiple-regression statistical techniques, the analyses were unable to distinguish the effect on murder of capital punishment from the effects of other factors.

The modern economic study of crime began with Gary Becker's famous paper on the economics of crime. The analysis of this paper indicated that criminals should be expected to respond to incentives, including the threat of punishment. Isaac Ehrlich was the first economist to test this theory for the particular case of capital punishment and homicide in two papers in 1975 and 1977. Ehrlich was the first to study capital punishment's deterrent effect using multivariate regression analysis. In contrast to earlier methods, this approach allowed Ehrlich to separate the effects of many different factors on murder. Ehrlich also examined the general deterrent effect of increased severity and probability with respect to prison and other non-capital punishments, and also found a deterrent effect. These results have been much less controversial even though the theoretical basis for the analysis was the same as for capital punishment.

Ehrlich's 1975 paper examined U.S time-series data for the period 1933-1969. Time-series data are data for one unit (for Ehrlich, for the entire U.S.) over several time periods. He tested the effect on national murder rates of deterrent variables (the probabilities of arrest, conviction, and execution), demographic variables (population, fraction of nonwhites, fraction of people age 14-24), economic variables (labor force participation, unemployment rate, real per capita permanent income, per capita government expenditures, and per capita expenditures on police), and a time variable. He found a statistically significant negative relationship between the murder rate and execution rate, indicating a deterrent effect. Specifically, he estimated that each execution resulted in approximately seven or eight fewer murders.

Ehrlich's 1977 paper studied cross-sectional data from the fifty states in 1940 and 1950. That is,

instead of his first paper's approach testing how the total U.S. murder rate changed across time as the execution rate changed, Ehrlich explored the relationship during a single year between each of the states' execution rates and their murder rates. Cross-sectional data are data from several units (here, the fifty states) for one time period (1940 or 1950).

Again, Ehrlich used multivariate regression analysis to separate the effect on murder of different factors. He included deterrent variables (probabilities of conviction and execution, median time spent in prison, and a dummy variable distinguishing executing states from non-executing states), demographic variables (state population, urban population, percent of nonwhites, and percent of people age 15-24 and 25-34), and economic variables (median family income and percent of families with income below half of the median income). The results indicated a substantial deterrent effect of capital punishment on murder.

Ehrlich's finding generated substantial interest in econometric analysis of capital punishment and deterrence. The papers that immediately followed Ehrlich used his original data (1933-1969 national time-series or 1940 and 1950 state level cross section) and variants of his econometric model. Many found a deterrent effect of capital punishment, but others did not. For example, using Ehrlich's data, all of the following found a deterrent effect: Yunker; Cloninger; and Ehrlich and Gibbons. In contrast, Bowers and Pierce; Passel and Taylor; and Hoenack and Weiler find no deterrence when they use the same data with alternative statistical specifications. Similarly, McAleer and Veall; Leamer; and McManus, find no deterrent effect when different variables are included over the same sample period. Finally, Black and Orsagh find mixed results depending on the cross-section year they use.

In the late 1980s and 1990s, a second-generation of econometric studies extended Ehrlich's national time-series data or used more recent cross-sectional data. As before, some papers found deterrence while others did not. For example, Layson, and Cover and Thistle use an extension of Ehrlich's national time-series data, covering up to 1977. Although Layson finds a significant deterrent effect of executions, Cover and Thistle correct for data flaws -- nonstationarity -- and find no deterrent effect. Chressanthis employs national time-series data covering 1966 through 1985 and finds a deterrent effect. In contrast, Grogger uses daily data for California during 1960-1963 and finds no deterrent effect.

However, most of the early studies—both the first wave and the second generation—suffered from fundamental flaws: they suffered important data limitations because they used either national time-series or cross-section data.

Using national time-series data created a serious aggregation problem. Any deterrence from an execution should affect the crime rate only in the executing state; one state's high execution rate would not be expected to change the rate in nearby states, where the first state's laws and courts lack criminal jurisdiction. Aggregation dilutes such distinct effects, creating "aggregation bias." For example, suppose that the following happens concurrently: the murder rate in a state with no executions randomly increases at the same time that the murder rate drops in a state with many executions. Aggregate data might incorrectly lead to an inference of no deterrence; the aggregate data, with the two states lumped together, would show an increase in executions leading to no change in the murder rate.

Cross-sectional studies also suffer serious problems. Most importantly, they preclude any consideration of what happens to crime, law enforcement, and judicial processes over time. Cross-section data also prevent researchers from controlling for jurisdiction-specific characteristics that could be related to murder, such as greater urban density in some states.

Several authors expressed similar data concerns with time-series and cross-section data and called for new research using panel data, as I now discuss.

IV. Modern Studies of Capital Punishment's Deterrent Effect.

Most recent studies have overcome the fundamental problems associated with national time-series and cross-section data by using panel-data techniques. Panel data are data from several units (the fifty states or all U.S. counties) over several different time periods; that is, panel data follow a cross-section over time. For example, a panel dataset might include data on each of the fifty states, or even on each U.S. county, for a series of years. These improved data allow researchers to capture the demographic, economic, and jurisdictional differences among U.S. states or counties, while avoiding aggregation bias. Furthermore, panel data produce many more observations than cross-section or time-series data, enabling researchers to estimate any deterrent effect more precisely. In addition to enjoying the benefits of panel data, recent studies have access to more recent data that make conclusions more relevant for the current environment. Using improved data and more sophisticated regression techniques, twelve refereed papers have been published or are forthcoming in the economics literature. Their conclusion is unanimous: all of the modern refereed papers find a significant deterrent effect.

I now briefly discuss the modern research in the economics literature from the past decade. I group the papers into those that use panel-data techniques and those using other techniques. (I was co-author of one paper, and my colleague Joanna Shepherd was author or co-author of several more.) I then discuss two papers which have been published in journals that do not subject papers to the refereeing process.

A. Modern Papers using Panel-Data Techniques.

1. Hashem Dezhbakhsh, Joanna Shepherd, and I examine whether deterrence exists using county-level panel data from 3,054 U.S. counties over the period 1977 to 1996. This is the only study to use county-level data, allowing us to estimate better the demographic, economic, and jurisdictional differences among U.S. counties that can affect murder rates. Moreover, the large number of county-level observations extends the empirical tests' reliability. We find a substantial deterrent effect; both death row sentences and executions result in decreases in the murder rate. A conservative estimate is that each execution results in, on average, 18 fewer murders. Our main finding, that capital punishment has a deterrent effect, is robust to many different ways of performing the statistical analysis and several ways of measuring the probability of an execution. For example, we find the same results if we use state instead of county data.

2. In another paper, Joanna Shepherd uses state-level, monthly panel data from 1977-1999 to examine two important questions in the capital punishment literature. First, she investigates the

types of murders deterred by capital punishment. Some people in the debate on capital punishment's deterrent effect believe that certain types of murder are not deterrable. They claim that murders committed during interpersonal disputes, murders by intimates, or unplanned crimes of passion are not intentionally committed and are therefore nondeterrable. She finds that the combination of death row sentences and executions deters all types of murders: murders between intimates, acquaintances, and strangers, crime-of-passion murders and murders committed during other felonies, and murders of both African-American and white people. She estimates that each death row sentence deters approximately 4.5 murders and that each execution deters approximately 3 murders. In this paper she also finds that that shorter waits on death row increase deterrence. Specifically, one extra murder is deterred for every 2.75-years reduction in the death-row wait before each execution.

3. Hashem Dezhbakhsh and Joanna Shepherd use state-level panel data from 1960-2000 to examine capital punishment's deterrent effect. This is the only study to use data from before, during, and after the 1972-1976 Supreme Court moratorium on executions. The study advances the deterrence literature by exploiting an important characteristic that other studies overlooked: the quasi-experimental nature of the Supreme Court moratorium. First, they perform before-and-after moratorium comparisons by comparing the murder rate for each state immediately before and after it suspended or reinstated the death penalty. These before-and-after comparisons are informative because many factors that affect crime—e.g., law enforcement, judicial, demographic, and economic variables—change only slightly over a short period of time. In addition, the moratorium began and ended in different years in different states. Considering the different start and end dates, the duration of the moratorium varied considerably across states, ranging from four to thirty years. Observing similar changes in murder rates immediately after the same legal change in different years and in various states provides additional evidence of the moratorium's effect on murder. The before-and-after comparisons reveal that as many as 91 percent of states experienced an increase in murder rates after they suspended the death penalty. In about 70 percent of the cases, the murder rate dropped after the state reinstated the death penalty. They supplement the before-and-after comparisons with time-series and panel-data regression analyses that use both pre- and postmoratorium data. These estimates suggest that both adopting a capital statute and exercising it have strong deterrent effects.

4 and 5. Two papers by FCC economist Paul Zimmerman find a deterrent effect. Zimmerman uses state-level panel data from 1978 to 1997 to examine the relationship between state execution rates and murder rates. In a second paper, he employs state-level panel data from 1978-2000 to examine which execution methods have the strongest deterrent effects. In both papers, Zimmerman finds a significant deterrent effect of capital punishment. He estimates that each execution deters an average of 14 murders and that executions by electrocution have the strongest impact.

6. H. Naci Mocan and R. Kaj Gittings use state-level panel data from 1977 to 1997 to examine the relationship between executions, commutations, and murder. Again, the authors find a significant deterrent effect; they estimate that each execution deters an average of 5 murders. Their results also indicate that both commuting death-row prisoners' sentences and removing them from death row cause increases in murder. Specifically, each commutation results in

approximately five extra murders and each removal from death row generates one additional murder.

7. Another recent paper by Lawrence Katz, Steven D. Levitt, and Ellen Shustorovich uses state-level panel data covering the period 1950 to 1990 to measure the relationship between prison conditions, capital punishment, and crime rates. They find that the death rate among prisoners (a proxy for prison conditions) has a significant, negative relationship with overall violent crime rates and property crime rates. As expected, the execution rate has no statistically significant relationship with overall violent crime rates (which consist mainly of robbery and aggravated assault rates) and property crime rates; that is, executions have no effect on non-capital crimes. In several estimations, both the prison death rate and the execution rate are found to have significant, negative relationships with murder rates. The deterrent effect of executions is especially strong in the estimations that control for the economic and demographic differences among states.

B. Modern Papers Using Other Techniques

8. Instead of a panel-data study, Dale O. Cloninger and Roberto Marchesini conduct a portfolio analysis in a type of controlled group experiment: the Texas unofficial moratorium on executions during most of 1996. They find that the moratorium appears to have caused additional homicides and that murder rates significantly decreased after the moratorium was lifted.

9. Harold J. Brumm and Dale O. Cloninger use cross-sectional data covering 58 cities in 1985 to distinguish between criminals' perceived risk of punishment and the ex-post risk of punishment measured by arrest rates, conviction rates, or execution rates. They find that the perceived risk of punishment, including the probability of execution, is negatively and significantly correlated with the homicide commission rate.

10. James A. Yunker tests the deterrence hypothesis using two sets of post-moratorium data: state cross-section data from 1976 and 1997 and national time-series data from 1930-1997. He finds a strong deterrent effect in the time-series data that disappears when the data are limited to the 1930-1976 period. Therefore, he concludes that postmoratorium data is critical in testing of the deterrence hypothesis.

11 and 12. Two other papers, one by Isaac Ehrlich and Zhiqiang Liu and the other by Zhiqiang Liu, use Ehrlich's original state-level, cross-section data. The study by Ehrlich and Liu offers a theory-based sensitivity analysis of estimated deterrent effects and finds that executions have a significant deterrent effect. Liu's study uses switching regression techniques in estimations that take into account the endogenous nature of the status of the death penalty. He also finds a strong deterrent effect.

C. Unrefereed Papers

One paper in the Michigan Law Review by Joanna Shepherd looks at data by states. She finds a "threshold effect." States that have executed more than approximately nine murderers exhibit

deterrence; in states that have executed fewer persons, there is either no effect or a “brutalization effect,” indicating that capital punishment has led to an increase in the number of murders. Overall, capital punishment has led to a net saving of lives. More lives could be saved if states with few executions either ceased executions or alternatively, if they pursued capital punishment more vigorously. While this paper was not published in a refereed journal, it was presented at several universities and posted for comments at online services such as SSRN.

A recent paper in the Stanford Law Review questions some of these studies. This paper purports to show that the estimates of a deterrent effect are “fragile” and can be changed by statistical manipulation. The results of this paper have not been evaluated by competent scholars; the Stanford Law Review, like all law reviews, is edited by students who have no particular competence in econometrics. Moreover, Professors Wolfers and Donohue chose not to make their paper available online through a service such as SSRN or the BE Press, so that the scholarly community did not have access to their analysis before it was published. Steps are in process to generate such an analysis, but at this point the weight of evidence must be interpreted as finding a deterrent effect. Moreover, although Professors Donohue and Wolfers had access to all of the papers mentioned in this testimony, they chose to comment on only some of these papers.

V. Summary

The literature is easy to summarize: almost all modern studies and all the refereed studies find a significant deterrent effect of capital punishment. Only one study questions these results. To an economist, this is not surprising: we expect criminals and potential criminals to respond to sanctions, and execution is the most severe sanction available.

Notes

1. Joanna Shepherd was a major contributor to this testimony.
2. For example, J.T. Sellin, *J. T., The Death Penalty* (1959); H. Eysenck, *Crime and Personality* (1970).
3. Gary Becker, “Crime and Punishment: An Economic Analysis,” 76 *Journal of Political Economy* 169 (1968).
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5. Isaac Ehrlich, *Participation in Illegitimate Activities: A Theoretical and Empirical Investigation* 81 *The Journal of Political Economy* No. 3 (May, 1973), pp. 521-565.
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SMOKE AND MIRRORS ON RACE AND THE DEATH PENALTY

By KENT SCHEIDEGGER*

Introduction

Claims that the death penalty is enforced in a manner that discriminates on the basis of race have long been prominent in the capital punishment debate. In its 1972 decision in *Furman v. Georgia*,¹ the Supreme Court relied on the Eighth Amendment's Cruel and Unusual Punishment Clause to throw out the capital punishment laws then in existence, but the Equal Protection Clause lay just beneath the surface of the opinions.² Congress and 38 state legislatures rewrote their laws to put more structure into the sentencing decision so as to reduce the possibility of racial bias.³

In January 2003, a study of capital punishment in Maryland was widely reported as confirming the claim that race remains a large factor. "Large Racial Disparity Found By Study of Md. Death Penalty," said the headline in the *Washington Post*.⁴ A hard look at the numbers tells a different story. First, however, a review of the background is in order.

The *McCleskey* Case

The most widely known study of race and capital punishment is the one involved in a Supreme Court case, *McCleskey v. Kemp*.⁵ The NAACP Legal Defense and Education Fund, Inc. (LDF) asked a group of researchers headed by Dr. David Baldus to undertake a study for the specific purpose of using the results to challenge Georgia's capital punishment system.⁶ The LDF also arranged funding for the study. One result of this study was undisputed. "What is most striking about these results is the total absence of any race-of-defendant effect."⁷ The reforms after *Furman v. Georgia* had successfully eliminated discrimination against black defendants as a substantial factor in capital sentencing. This was consistent with a variety of studies done in other states.⁸

With their primary argument disproved by their own study, *McCleskey*'s defenders proceeded to a federal *habeas corpus* hearing on a different theory. The Baldus group claimed to have found a "race-of-victim" effect. That is, after controlling for other factors, murders of black victims are somewhat less likely to result in a death sentence than murders of white victims.⁹ Based on a mechanical "culpability index," Dr. Baldus identified a class of clearly aggravated cases where the death penalty was consistently imposed, a class of clearly mitigated cases where it was almost never imposed, and a mid-range where it was sometimes imposed,¹⁰ exactly the way a discretionary system should work. It was only within the mid-range that the race of the victim was claimed to be a factor. After an extensive hearing with experts on both sides, the federal District Court found numerous problems with Dr. Baldus's data and methods. Most important, though, was a finding that the model claiming to show a

race-of-victim effect had failed to account for the legitimate factor of the strength of the prosecution's case for guilt. When a different model that accounted for that factor was used, the race-of-victim effect disappeared.¹¹

Despite this finding, and contrary to normal appellate practice, the Court of Appeals and the Supreme Court assumed on appeal that Dr. Baldus had actually proven his case.¹² Ever since, the Supreme Court's opinion in *McCleskey* has been cited for "facts" which it merely assumed, and which the trial court had found were false.¹³ The Court held that even if the statistics were valid, "McCleskey cannot prove a constitutional violation by demonstrating that other defendants who may be similarly situated did not receive the death penalty."¹⁴

This holding points out what is so very odd about this race-of-victim bias claim. The benchmark of our society for what kind of case "deserves" the death penalty is established in those cases where race is not a factor, i.e., in those cases where the murderer, the victim, and the decision-makers are all the same race. Traditionally, at least in the Southeast, that would be the case where they are all white. A race-of-defendant bias would mean that there are black defendants on death row who would have been sentenced to life if their cases had been measured by the benchmark. That is a valid ground for attacking the death penalty, as was done successfully in *Furman*. However, a race-of-victim effect means that every murderer on death row would still be there if the bias were eliminated and every case judged by the race-neutral benchmark, but a few more murderers would be there as well. The unjust verdicts which result from a system biased against black victims are the cases that should result in a death sentence according to the race-neutral criteria, but which result in life sentences instead. *McCleskey*'s sentence was correct when measured against the race-neutral benchmark, and he was justly executed for gunning down a police officer in the performance of his duty. The unjust sentences, if Dr. Baldus is correct, are in the similar cases where equally culpable murderers get off with life.

Post-*McCleskey* Studies

The *McCleskey* decision shut down Baldus-type studies as tools of federal litigation. Similar studies since then have been done in a few states where state courts chose not to follow *McCleskey* on independent state grounds, where legislative or executive branches commissioned them, or where there were done independently of government.

The California Attorney General commissioned the RAND Corporation to study that state's system in preparation for *McCleskey*-type litigation which was subsequently

dismissed. Using a different methodology, Klein and Rolph found no evidence of racial discrimination based on either the race of the victim or the race of the defendant.¹⁵

In New Jersey, the Supreme Court appointed a succession of special masters, the first one being Dr. Baldus, to study the death penalty in that state. The 2001 report of Judge David Baime reports that the statistical evidence supports neither the thesis of race-of-defendant bias nor that of race-of-victim bias in determining the likelihood that a defendant will be sentenced to death.¹⁶ Statewide data do show that proportionately more white-victim cases advance to the penalty phase. However, this is not actually caused by race of the victim, but rather by different prosecutorial practices in counties with different populations. Prosecutors in the more urban counties, with proportionately more black residents and hence more black-victim cases, take fewer potentially capital cases to a penalty trial. Conversely, prosecutors in the less urban counties, which generally have higher percentage white populations, seek relatively more death sentences. “New Jersey is a small and densely populated state. It is, nevertheless, a heterogenous one. It is thus not remarkable that the counties do not march in lock-step in the manner in which death-eligible cases are prosecuted.”¹⁷

The Nebraska Legislature commissioned a study, which was headed by Dr. Baldus and George Woodworth, the lead researchers of the *McCleskey* study. This study found no significant evidence of sentencing disparity based on race of the defendant, race of the victim, or socioeconomic status.¹⁸ The study did find differences among counties, particularly between urban and rural. The Baldus group uses the term “geographic disparity”¹⁹ to describe the same phenomenon that Judge Baime calls not marching in lock-step. However, the Baldus group found that the trial judges, who did the sentencing in Nebraska at this time, effectively corrected for the difference.²⁰

In January 2000, the United States Justice Department released raw data on the ethnic breakdown of persons for whom the death penalty was sought at various stages of federal prosecutions and on those finally sentenced to death.²¹ Federal prosecution of violent crime has been targeted specifically at drug-trafficking organized crime for many years. From 1988 to 1994, the only federal death penalty in force was the Drug Kingpin Act.²² No one should be surprised that the organizations smuggling drugs from Latin America are largely Hispanic or that the drug-fueled, violent gangs of the inner city are largely black. So there should have been no surprise that the federal death row has a very large percentage of black and Hispanic murderers, as this report showed it does. The shock and dismay that accompanied the release of this report²³ was entirely unwarranted. The data gathering process continued and, sure enough, the proportion of minorities for whom the death penalty is sought or obtained reflects the pool of potentially capital cases which are appropriate for federal prosecution.²⁴

A study by a legislative commission in Virginia produced results similar to the New Jersey and Nebraska studies. “The findings clearly indicate that race plays no role in the decisions made by local prosecutors to seek the death penalty in capital-eligible cases.”²⁵ However, urban prosecutors do seek it less often than rural ones.²⁶ In interviews with the urban prosecutors, the reason most often given for seeking the death penalty less often was the reluctance of urban juries to impose it.²⁷

The Maryland Study

With the background of these other studies in mind, analysis of the Paternoster study in Maryland²⁸ is straightforward. Prior to the year 2000, there had been four studies of the death penalty in Maryland, but none of them had information on the aggravating and mitigating circumstances of the individual cases. Thus, they lacked the essential information to make a judgment about the administration of the death penalty in Maryland.²⁹ In 2000, Governor Glendenning funded a study to gather that information.

The study began with a database of approximately 6,000 cases where the defendant was convicted of first- or second-degree murder between 1978 and 1999.³⁰ That is about 40% less than the approximately 10,000 cases of murder and voluntary manslaughter in that period,³¹ so presumably the remainder were voluntary manslaughter, unsolved cases, or cases where a perpetrator was identified but evidence was insufficient to convict.

One of the essential requirements of a valid post-*Furman* death penalty statute is that it first narrow the category of defendants for whom the death penalty can even be considered.³² Maryland law does this by requiring that the murder meet all of the following criteria: (1) the murder was first degree; (2) the defendant was a principal in the first degree (i.e., the actual killer, rather than just an accomplice); (3) the defendant was at least 18; (4) the defendant was not retarded; and (5) at least one of a list of ten aggravating circumstances is true.³³ The most common aggravating circumstance is murder in the course of a rape, robbery, or certain other felonies. The Paternoster group determined that 1,311 out of 5,978 murder convictions were “death eligible.”³⁴ Before any decision-maker exercises any discretion, Maryland law whittles the class of murderers eligible for the death penalty to a mere 22% of the total. Maryland’s criteria therefore easily meet the constitutional requirement of a meaningful narrowing of the eligible class.

Prosecutor discretion in seeking the death penalty and continuing the case to a penalty hearing further reduced the number of hearings to 14% of the original 1,311. Juries actually imposed death sentences in about 42% of the cases where they were asked, or about 6% of the originally eligible cases. The key question is what part, if any, racial discrimination plays in these two discretionary steps: the decision of

the prosecutor to ask the jury for the death penalty, and the decision of the jury, when asked, to actually impose it. A further subdivision is whether the race of the defendant or the race of the victim makes a difference.

The study also asks about so-called “geographic disparity,” at one point even equating such “disparity” with “arbitrariness.”³⁵ The study appears to simply assume throughout that variation by county is a problem on the same order as racial discrimination. In other words, contrary to Judge Baime’s report in New Jersey,³⁶ the Paternoster report appears to assume that Maryland’s counties *should* “march in lock-step.” This assumption colors the entire report.

The report then tabulates numbers of cases by race and by county without adjusting for case characteristics.³⁷ However, the meat of the study lies in the adjusted race data, and the combined effects of race and county. First, there is the result, that by all rights, *should* have been the headline story. After adjusting for relevant case characteristics, so as to compare apples to apples, there is no difference between the death sentence rates of black and white offenders, beyond the inevitable level of statistical “noise” inherent in such studies. “In sum, *we have found no evidence that the race of the defendant matters in the processing of capital cases in the state.*”³⁸

Although this result is consistent with the other studies discussed above, it is completely contrary to the popular conception of the death penalty in America. For any American institution to eliminate the primary racial effect of concern to the point that it is lost in the statistical grass is an accomplishment to be celebrated with fireworks and champagne. Instead, this finding was barely noticed.

On the race-of-victim effect, the picture is murky. There are various ways to analyze the data. Some ways show a significant race of victim effect while others do not.³⁹ Different regression models can be constructed by choosing which variables to include. Paternoster reports that “considered *alone* the race of the victim matters, those who kill white victims are at a substantially increased risk of being sentenced to death”⁴⁰ But considering race alone is wrong. A different model considering race and jurisdiction together yields a very different result:

“When the prosecuting jurisdiction is added to the model, the effect for the victim’s race diminishes substantially, and is no longer statistically significant. This would suggest that jurisdiction and race of victim are confounded. There are state’s attorneys in Maryland who more frequently pursue the death penalty than others. It also happens that there are more white victim homicides committed in those jurisdictions where there is a more frequent pursuit of the death penalty.”⁴¹

What this means, in English, is that some counties

in Maryland elect tougher-on-crime prosecutors and have tougher juries than other counties. In the tougher counties, a murder in the middle range is more likely to result in a death sentence than a similar murder in a softer county. Support for tough-on-crime measures generally and capital punishment in particular is substantially correlated with race. One poll earlier this year found whites in favor of capital punishment (68-27) and blacks opposed (40-56).⁴² For this reason, the tougher counties are likely to have a higher proportion of white residents and hence white crime victims.

What the Paternoster group calls “geographic disparity” is, in reality, local government in action. This is exactly the way our system is *supposed* to work. We elect our trial-level prosecutors by county so that local people have local control over how the discretion of that office is exercised. If the voters of suburban Baltimore County choose to elect a prosecutor who seeks the death penalty frequently, while the voters of downtown Baltimore City elect one who seeks it rarely, that is their choice.

Prosecutors also make judgments about the kinds of cases in which the juries of their area will impose the death penalty. This form of local control, the jury of the vicinage, is one of our cherished rights going back to the common law. Parliament’s violation of this right was one of the reasons for the American Revolution.⁴³ The right is guaranteed, albeit in modified form appropriate for the federal courts, in the Sixth Amendment.

Why, one might ask, is there so much hyperventilating about “geographic disparity”? Apparently, it is because all the other discrimination arguments against capital punishment have failed. The post-*Furman* reforms have been a resounding success in smashing the form of discrimination of greatest concern: the race of the defendant. In study after study, race-of-victim bias is either non-existent or disappears when legitimate variables are accounted for. What is left is to create a brand new requirement of statewide uniformity, flatly contrary to the American tradition of local control, and then declare our judicial system a failure for violating this *ex post facto* requirement. It is an elaborate sleight of hand.

The Real Problem

Debunking the racial discrimination claim does not mean that everything is just fine in Maryland, or any other state. The Paternoster study does indicate a very real problem. The people of Baltimore City and Prince George’s County are receiving an inferior quality of justice. A murderer who kills a resident of one of those counties is more likely to get off with a life sentence under circumstances where the death penalty is warranted.

Failure to use the death penalty where it is warranted can have fatal consequences for innocent people.

Although the deterrence debate has not yet been conclusively resolved, a mounting body of scholarship confirms what common sense has always told us: a death penalty that is actually enforced saves innocent lives.⁴⁴

We can make a rough calculation with the Paternoster study's unadjusted geographic data⁴⁵ to get an idea of the magnitude of the problem. Baltimore City had a fraction of 0.435 of the state's 1311 death-eligible homicides, or 570. At the statewide average rate of death sentences, that would yield 33, instead of the 10 that Baltimore City actually produced. The Emory study estimates that each execution saves 18 innocent lives through deterrence.⁴⁶ If the additional 23 death sentences had been imposed and carried out,⁴⁷ over 400 murders could have been deterred.

That is a staggering toll of death caused by insufficient use and execution of the death penalty. Even if this rough calculation is off by a factor of four, that would still be over 100 people murdered who could have been saved.

To properly protect the people in Baltimore City and other jurisdictions like it, we must restore public confidence in and support of capital punishment, so that prosecutors can seek it in appropriate cases, and juries will impose it. The first step toward that end is to debunk the myth that capital punishment is imposed discriminatorily. The numbers are there in the opponents' own studies, once we cut through the spin and look at the facts.

* Kent Scheidegger is the Legal Director of the Criminal Justice Legal Foundation. He is the Chairman-Elect of the Federalist Society's Criminal Law and Procedure Practice Group.

Footnotes

¹ 408 U. S. 238.

² See *Graham v. Collins*, 506 U. S. 461, 479-484 (1993) (Thomas, J., concurring).

³ See *Gregg v. Georgia*, 428 U. S. 153, 179-180 (1976); U. S. Dept. of Justice, U. S. Bureau of Justice Statistics, Capital Punishment 2001, Tables 1 & 2 (2002).

⁴ Susan Levine & Lori Montgomery, Large Racial Disparity Found By Study of Md. Death Penalty, *Washington Post*, Jan. 8, 2003, p. A1.

⁵ 481 U. S. 279 (1987).

⁶ See D. Baldus, G. Woodworth & C. Pulaski, Equal Justice and the Death Penalty 44 (1990).

⁷ *Id.*, at 150.

⁸ See *id.*, at 254.

⁹ The alarmist claim that the Baldus study shows that killers of white victims are "four times as likely" to receive a death sentence as killers of black victims is literally a textbook example of how to lie with statistics. See Barnett, How Numbers Can Trick You, 97 *Technology R.* 38, 42-43 (1994).

¹⁰ See Baldus, *supra* note 6, at 91, Figure 5.

¹¹ *McCleskey v. Zant*, 580 F. Supp. 338, 368 (ND Ga. 1984).

¹² *McCleskey v. Kemp*, 481 U. S. 279, 291, n. 7 (1987).

¹³ See, e.g., *Callins v. Collins*, 510 U. S. 1141, 1153-1154 (1994) (Blackmun, J., dissenting).

¹⁴ 481 U. S., at 307.

¹⁵ Klein & Rolph, Relationship of Offender and Victim Race to Death Penalty Sentences in California, 32 *Jurimetrics J.* 33, 44 (1991).

¹⁶ D. Baime, Report to the Supreme Court Systemic Proportionality Review Project: 2000-2001 Term 61 (2001), <http://www.judiciary.state.nj.us/baime/baimereport.pdf>.

¹⁷ *Id.*, at 62.

¹⁸ D. Baldus, G. Woodworth, G. Young, & A. Christ, The Disposition of Nebraska Capital and Non-Capital Homicide Cases (1973-1999): A Legal and Empirical Analysis, Executive Summary 14-22 (2001).

¹⁹ *Id.*, at 18.

²⁰ *Id.*, at 21.

²¹ U. S. Dept. of Justice, The Federal Death Penalty System: A Statistical Survey (1988-2000) (2000).

²² *Id.*, at 1.

²³ See, e.g., Bonner & Lacey, Pervasive Disparities Found in the Federal Death Penalty, *N. Y. Times*, Sept. 12, 2000, at A6.

²⁴ U. S. Dept. of Justice, The Federal Death Penalty System: Supplementary Data, Analysis and Revised Protocols for Capital Case Review 4 (2001).

²⁵ Joint Legislative Audit and Review Commission, Review of Virginia's System of Capital Punishment, iii (2002), <http://jlarc.state.va.us/reports/rpt274.pdf>

²⁶ *Ibid.*

²⁷ *Id.*, at 31.

²⁸ R. Paternoster, et al., An Empirical Analysis of Maryland's Death Sentencing System with Respect to the Influence of Race and Legal Jurisdiction (2003) (cited below as "Paternoster"). The study is on the University of Maryland Web site as <http://www.urhome.umd.edu/newsdesk/pdf/exec.pdf> (Executive Summary) and <http://www.urhome.umd.edu/newsdesk/pdf/finalrep.pdf> (Final Report). Page cites below are to the Executive Summary unless otherwise noted.

²⁹ *Id.*, at 4.

³⁰ *Id.*, at 7.

³¹ U. S. Bureau of Justice Statistics, Data Online, query run July 28, 2003; <http://bjsdata.ojp.usdoj.gov/dataonline/Search/Homicide/State/StatebyState.cfm>. The FBI collects data on a category it calls "murder and nonnegligent manslaughter."

³² See *Tuilaepa v. California*, 512 U. S. 967, 972 (1994).

³³ Paternoster, *supra* note 28, at 5-7.

³⁴ *Id.*, at 9.

³⁵ *Id.*, at 1.

³⁶ See *supra* note 17 and accompanying text.

³⁷ Paternoster, *supra* note 28, at 13-23.

³⁸ *Id.*, at 26 (emphasis in original).

³⁹ See *id.*, at 27-28 (logistical regression shows significant race-of-victim effect, according to generally accepted statistical criterion, while stepwise regression does not).

⁴⁰ *Id.*, at 32 (emphasis added).

⁴¹ *Ibid.*

⁴² Sussman, No Blanket Commutation, Poll: Most Oppose Clearing Death Row (Jan. 24, 2003), http://abcnews.go.com/sections/us/DailyNews/commutation_poll030124.html.

⁴³ Declaration of Independence (1776) ("For transporting us beyond Seas to be tried for pretended Offences").

⁴⁴ See Dezhbakhsh, Rubin, and Shephard, Does Capital Punishment Have a Deterrent Effect?, 33 *American Law and Economics Review* 344 (2003); Mocan, Getting Off Death Row: Commuted Sentences and the Deterrent Effect of Capital Punishment, *Journal of Law and Economics* (forthcoming Oct. 2003), <http://econ.cudenver.edu/mocan/papers/GettingOffDeathRow.pdf>; Cloninger & Marchesini, "Execution and Deterrence: A Quasi-Controlled Group Experiment," 33 *Applied Economics* 569, 576 (2001); California District Attorneys' Association, Prosecutors' Perspective on California's Death Penalty 44-46 (2003), <http://www.cdaa.org/WhitePapers/DPPaper.pdf>

⁴⁵ See Paternoster, *supra* note 28, Report Figure 5. The adjustments for case characteristics, see *id.*, Report Figure 10F, are significant but not needed for the order-of-magnitude calculations being made here.

⁴⁶ See Dezhbakhsh, et al., *supra* note 44.

⁴⁷ Actually carrying them out is another problem and the subject of another paper. The primary reason death sentences are not carried out in Maryland has been changes in the rules after the trial.